

Prior Art Rejections

Claims 1 and 8 were rejected under 35 U.S.C. §103(a), as being unpatentable over Dettling *et al.* in view of Chi and/or van Ommering *et al.* According to the Examiner, Dettling *et al.* discloses a method of manufacturing a bipolar graphite article by forming a first component of graphite material with an operative side and a back side, forming a second component of graphite material with an operative side and a back side, and assembling the components. According to the Examiner column 2, lines 20-25 of Dettling *et al.* discloses the importance of forming a tight seal between the two components.

The Examiner opined that it is well known in the bonding art to provide two plates with interlocking configurations in order to secure a tight seal or bond between the plates. The Examiner continued by stating that Chi discloses a method of securing plates of a fuel cell together where an integral seal is formed between cooling plates by providing the plates with male and female joints as an alternative to other known methods. Next the Examiner stated that van Ommering *et al.* discloses another example in the field of manufacturing fuel cells where it is known to provide corresponding tongue and groove elements on two components and pointed to the frame segments in the reference. The Examiner concluded that it would have been obvious to one of ordinary skill in the art to provide the components in the method of manufacturing a bipolar graphite article as shown in Dettling *et al.* with a protrusion and a corresponding recess in order to form a better seal between the components

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation in the references themselves to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

In forming the combination of references it appears that the Examiner's motivation to combine the references is derived from column 2, lines 20-25 of Dettling *et al.* It appears that the Examiner has construed the passage in Dettling *et al.* to provide the required motivation to modify the disclosure of Dettling *et al.* to find different techniques to form a joint between two flow field plates. The relevant paragraph of Dettling *et al.* states as follows:

In previous systems wherein nonporous gas distribution plates were utilized, the reactants always flowed only through the grooves and were contained by the walls thereof. However, in the more recent systems utilizing porous plates, it has been necessary to seal porous plates along the edges, and in bipolar assemblies, to segregate the reactants from one another to avoid their unintended mixing which could cause the cells to operate improperly or fail altogether.

Applicant respectfully states that the cited passage in Dettling *et al.* would not motivate a person of ordinary skill to modify the teachings of Dettling *et al.* on how to form a joint between two plates, but rather to make a flow field plate more fluid impermeable. The issue being fluid permeability is supported by the paragraphs immediately following the passage cited by the Examiner. These paragraphs discuss techniques to address fluid leakage problems associated with a porous flow field plate.

Neither of the other two cited references provides the mandated objective motivation to modify the teachings of Dettling *et al.* The van Ommering *et al.* reference is directed to the issues of replacing the prior art bipolar plates with new gas diffusion layers and electrolyte reservoir and to improve electrical conductivity by using weld tabs instead of bipolar plates. The Chi reference is directed to making a fuel cell stack which individual cells are removable from the stack. Therefore, the rejection of claim 1 is improper because the combination of references as put forth does not include the required suggestion or motivation in the references themselves to modify the reference or to combine reference teachings. Applicant requests that the Examiner withdraw the rejection to claim 1.

Claims 2-7, 9 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Dettling *et al.* in view of Chi and/or van Ommering *et al.* as applied to claims 1 and 8 and further in view of Mercuri '728 *et al.* (U.S. Patent 5,885,728). The Examiner further rejected claim 10 rejected under 35 U.S.C. §103(a) as being unpatentable over Dettling *et al.* in view of Chi and/or van Ommering *et al.* and Mercuri '728 as applied to the claims above, and further in view of Edgington *et al.* The Examiner went on to reject claim 10 under 35 U.S.C. §103(a) as being unpatentable over Dettling *et al.* in view of Chi and/or van Ommering *et al.* and Mercuri '728, and further in view of Edgington *et al.* as applied to claim 10 above, and further in view of Selover, Jr. *et al.* The Examiner additionally rejected claims 2-7, 9 and 10 under 35 U.S.C. §103(a) as being obvious over Dettling *et al.* in view of Chi and/or van Ommering *et al.* as applied to claims 1 and 8 and further in view of Mercuri '336 *et al.* Finally, the Examiner rejected claims 9 and 10 under 35 U.S.C. §103(a) as being unpatentable over Dettling *et al.* in view of Chi and/or van Ommering *et al.* and Mercuri '336 as applied to claim 10 and further in view of Selover, Jr. *et al.*

The above rejections of independent claim 10 are improper for the same reason as the above rejection of claim 1, namely that the combination Dettling *et al.*, Chi, and van Ommering *et al.* reference is improper due to the lack of the objective motivation to combine the references as stated above. The above remarks regarding claim 1 are incorporated herein as applied to claim 10. For the above reasons the rejections of claim 10 should be withdrawn. Reconsideration of the rejected claims in light of these remarks is respectfully requested.

No fees are believed to be due. If there are any additional fees due in connection with the filing of this response, including any fees required for an additional extension of time under 37 C.F.R. 1.136, such an extension is requested and the Commissioner is authorized to charge or credit any overpayment to Deposit Account No. 50-1202.

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For the reasons set forth above, Applicants believe that the claims are patentable over the references cited and applied by the Examiner and a prompt and favorable action is solicited. The applicants believe that these claims are in condition for allowance, however, if the Examiner disagrees, the applicants respectfully request that the Examiner telephone the undersigned.

Respectfully submitted,



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